CALIFORNIA HYDROGEN HIGHWAY NETWORK

CA H2 NET FREQUENTLY ASKED QUESTIONS

Why is California pursuing development of hydrogen infrastructure?
There are many compelling reasons why it makes sense for California to pursue hydrogen:

- Fuel cell vehicles are zero emission
- Hydrogen can be made from clean renewable sources
- Hydrogen fuel can be produced domestically and within the state
- It can bring energy and economic security to California
- It can create jobs
- There is a very strong, broad stakeholder force behind hydrogen
- Auto manufacturers are producing and planning to market hydrogen cars
- Hydrogen technology can apply across product lines, from sub-compacts to large trucks and SUVs to powering homes, buildings and equipment
- Hydrogen vehicles can reach consumer marketability in high volumes

What are the goals of the CA H2 Net?
A three-phased approach has been established to implement the CA H2 Net. The goal of the CA H2 Net is to deploy Phase I, which is 50-100 hydrogen stations and 2,000 hydrogen-powered vehicles by 2010. Phases II and II will be achieved at an accelerated pace as determined appropriate through biennial technology and market reviews. This phased approach ensures that the CA H2 Net is implemented in a way that makes sense for technology readiness, the environment and the economy.

Who will implement the CA H2 Net?
The CA H2 Net will be implemented by the CalEPA in coordination with state and local agencies. Additionally, public-private partnership will continue to be used to collaborate and share responsibilities for implementation.

What is the purpose of the biennial reviews?
Biennial reviews are built into the implementation process to regularly evaluate technological maturity and commercial readiness for vehicles and other hydrogen-fueled products in order to determine the appropriate pace at which to move through the three phases of implementation. This mechanism will ensure station and vehicle deployment are in sync, and will allow goals and strategies to evolve as needed to accommodate the rapidly changing state of technology.

How will the CA H2 Net be funded?
Initial risks and investments will be shared by industry and government. The 2005 State budget included $6.5 million for co-funding of up to 3 stations, 12 hydrogen vehicles and 2 hydrogen shuttle buses through public bid projects.

Future funding by the State will be explored as part of the biennial review process.

What environmental guidelines will be established for the CA H2 Net?
To address the environmental concern of hydrogen production from non-renewable resources, the blueprint plan established three goals for the CA H2 Net. They include:

- A Renewable Portfolio Standard (RPS) for Hydrogen to initially utilize 20% renewable resources in the production of hydrogen (in excess of the State's 20% RPS for stationary power), increasing in future years.

- Guidelines to ensure the CA H2 Net provides, in the aggregate, an initial 30% reduction in GHG emissions relative to conventional gasoline and diesel vehicles, also increasing in future years.

- Compliance with criteria and toxic emission standards such that emissions of smog forming and toxic pollutants do not increase compared to fossil fuel vehicle use.

It was recognized early on in the blueprint development process that firm goals needed to be established to ensure that the CA H2 Net would be - from the very beginning - as clean, or cleaner, than what we're using now.

What is the strategy for siting hydrogen stations?
The CA H2 Net will plan and build a network of hydrogen fueling stations in the urban areas expected to have the highest vehicle populations and along California's interstate freeway system to connect them. The goal of this strategy is to make hydrogen refueling available to every Californian by 2010. Stations will be focused initially in the highest expected vehicle/population centers, such as Los Angeles, San Diego, San Francisco and Sacramento.

How will the hydrogen be produced?
The blueprint plan recommends utilizing a mix of hydrogen production pathways that meet the environmental guidelines and work toward the long-term goals of the CA H2 Net. This strategy provides flexibility to test a broad range of production methods in order to maximize experience gathering and allow superior pathways to evolve, while ensuring adequate infrastructure exists to support maximum deployment of hydrogen vehicles.

What safety measures will be taken?
Strict codes, standards and permitting requirements for hydrogen stations in California already exist. However, the blueprint plan recommends a process for updating those requirements to support more widespread deployment of

hydrogen production and fueling facilities as well as ensuring comprehensive information sharing and training for local permitting and emergency response personnel.

What makes a hydrogen station a CA H2 Net station?
CA H2 Net stations will provide some form of public access and meet the environmental standards established in the blueprint plan.

Why does the State need to be involved - why can't industry do this?
The State has a role to ensure energy security and environmental benefits possible from using hydrogen as a vehicle fuel are achieved as soon as possible. As mentioned above, at this time in development, the investment risk should be shared. For this reason, the State is contributing to co-funding of stations that will exemplify the goals of the Blueprint plan. Additionally, the coordination role that the State can play by establishing effective deployment plans, assisting with development of improved codes and standards and public education are critical to the successful development of a hydrogen vehicle future.

Will there be hydrogen vehicles out there to support the stations?
Stations will be located and built in coordination with the expected availability of vehicles, and expanded into more areas as commercial availability of vehicles expands. The concept of the blueprint plan was to determine the effort necessary to advance a hydrogen economy in California. This means the State will provide leadership, incentives and policies that drive advancement of hydrogen vehicle technology as well as station deployment.

Is California moving too quickly on hydrogen?
A hydrogen economy is already evolving around us - auto manufactures are investing billions of dollars in hydrogen technology, oil companies are diversifying their portfolios, including clean, renewable fuels, and other states and countries are creating policies and investing in hydrogen in various ways. Meanwhile, petroleum supply constraints, national security concerns, and threats to public and environmental health accelerate the State's need to develop sustainable solutions. California has the opportunity to provide the needed leadership that will nurture these efforts, foster collaboration and create momentum in a way that will benefit our state as much, and as soon as possible. California historically has led economic and environmental policies and initiatives that have spurred technological development, and which other states and countries have used to model their efforts.

How much will consumers pay for hydrogen compared to gasoline?
The price target for hydrogen as a vehicle fuel is to be competitive with gasoline. The U.S. Department of Energy (U.S. DOE) has set a milestone target of

$1.50/gallon of gasoline equivalent by 2010 (U.S. DOE Posture Plan, February 2004).

How does focus on the CA H2 Net impact other advanced vehicle technology options?

The CA H2 Net, like programs associated with other technologies, will not exclude other beneficial technologies, but rather will work with them, and likely contribute to their advancement as well. Technologies such as battery electric, plug-in hybrids, compressed natural gas (CNG), and others can contribute significantly to meeting our state's goals, along with hydrogen.

Advanced transportation technologies often work together. For instance, fuel cell vehicles are electric vehicles, and many are hybrid electric vehicles. In fact, much of the work that auto companies have done with battery electric and hybrid electric vehicles is helping advance the further evolution to fuel cell electric vehicles. There is a misconception that there is a sole "winner" in technology and fuel choice. In reality, there are many applications where different technologies will exist and overlap, especially in the transition from current fuels to hydrogen. Electric, hybrid electric, fuel cell, plug-in hybrid, and internal combustion engine vehicles may all play a role in this transition.